FCS SATCOM

Update for PMS 400G

FCS SATCOM Review

SATCOM Requirements

System	Freq.	Capabilities
SHF	X-band 7-8 GHz	Multiple baseband subsystems, JDISS, JWICS, CTAPS, TESS, FLTBCST, JMCIS, Tactical TTY, Defense Secure Network, VVFDT, POTS, SALTS, STU-III, ANDVT, VIXS, and T1 data rate.
CWSP	C/Ku-Band 3.7-4.2GHz 10.95-14.50 GHz	Non-Tactical communications provide: VTC, primary image transfer, crew telephones, pay per use, HDR text messages, FAX, packetized data and email.
GBS	Ku-Band 10.95-14.50 GHz	A multichannel, high capacity, one way transmission for variety of high speed, computer to computer data updates, high quality imagery, intelligence information, weather, theater message traffic, joint and service-unique news, education/training & video.

FCS SATCOM Could Serve as Antenna for all Three Systems

FCS SATCOM Review

Design Criteria

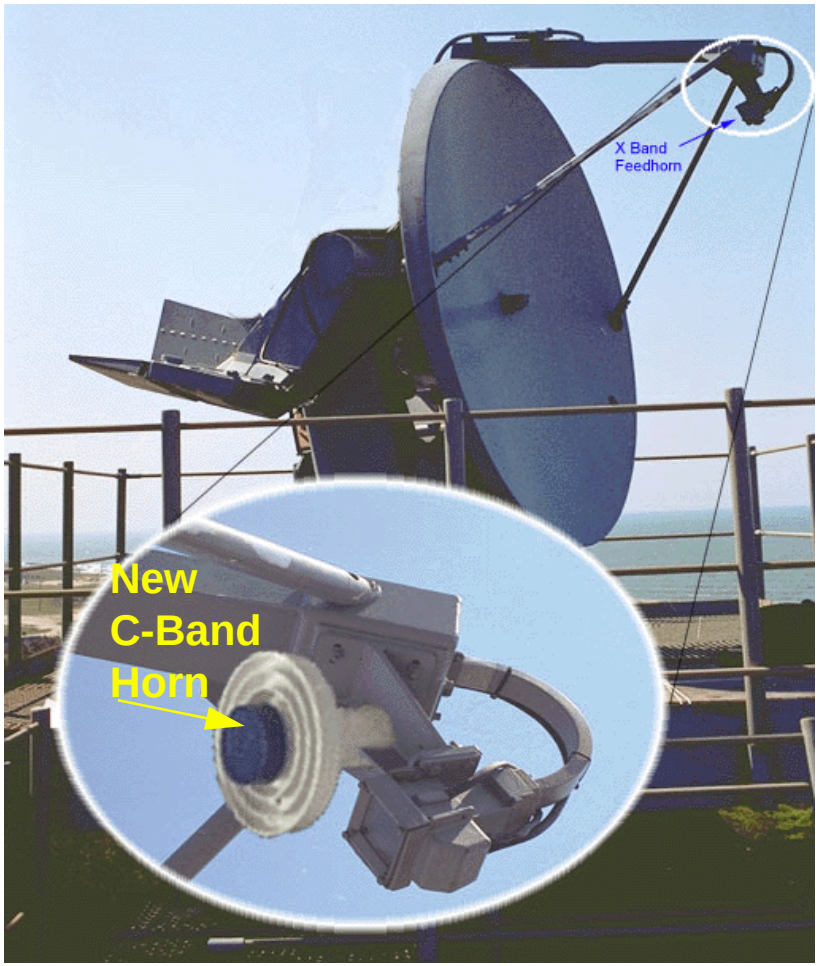
- Maximize Use of Current Assets
- Maximize Open Architecture/COTS Use
- Minimize Computer Program Changes
- Maximize AWS B/L Independence
- Maximize Ship Installation Savings
- Minimize Tech Manual Changes
- Minimize Tactical Changes
- Minimize New Interfaces

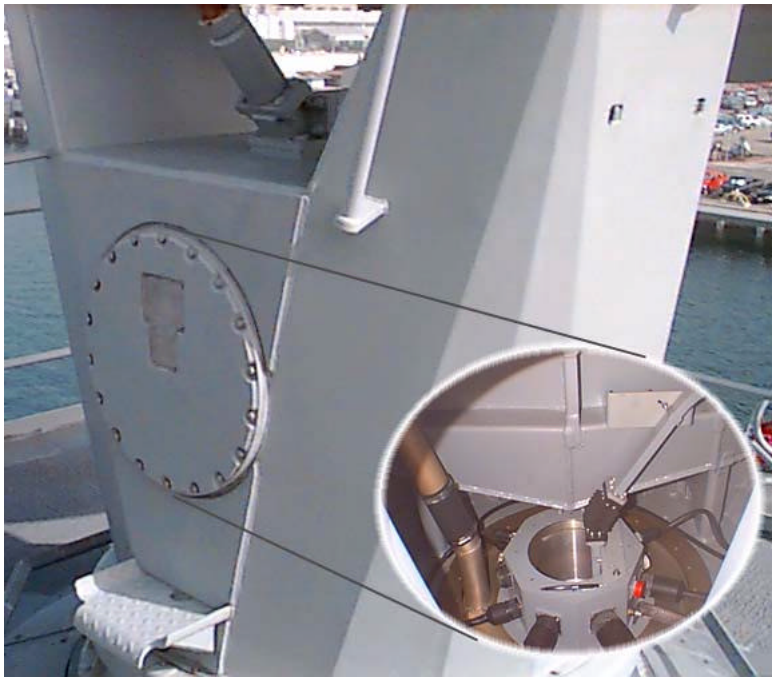
FCS SATCOM Review

Team Composition

Org.	Involvement
PEOSC	Status/Approval/Funding
SPAWAR	SATCOM Equipment/Funding
NSWC-PHD	Lead/Systems Engineering
NSWC-PHD	Logistics Support
NSWC-DD	Computer Program
SURFPAC/LANT	Shipboard Testing
Raytheon	Antenna Modification
Lockheed Martin	Moorestown - ECP Review
General Dynamics	Pittsfield - Antenna Pedestal Mod.

FCS SATCOM Topside Equipment





Mk-82 Pedestal and Slip Ring Assembly

FCS SATCOM Review

FCS SATCOM Overview

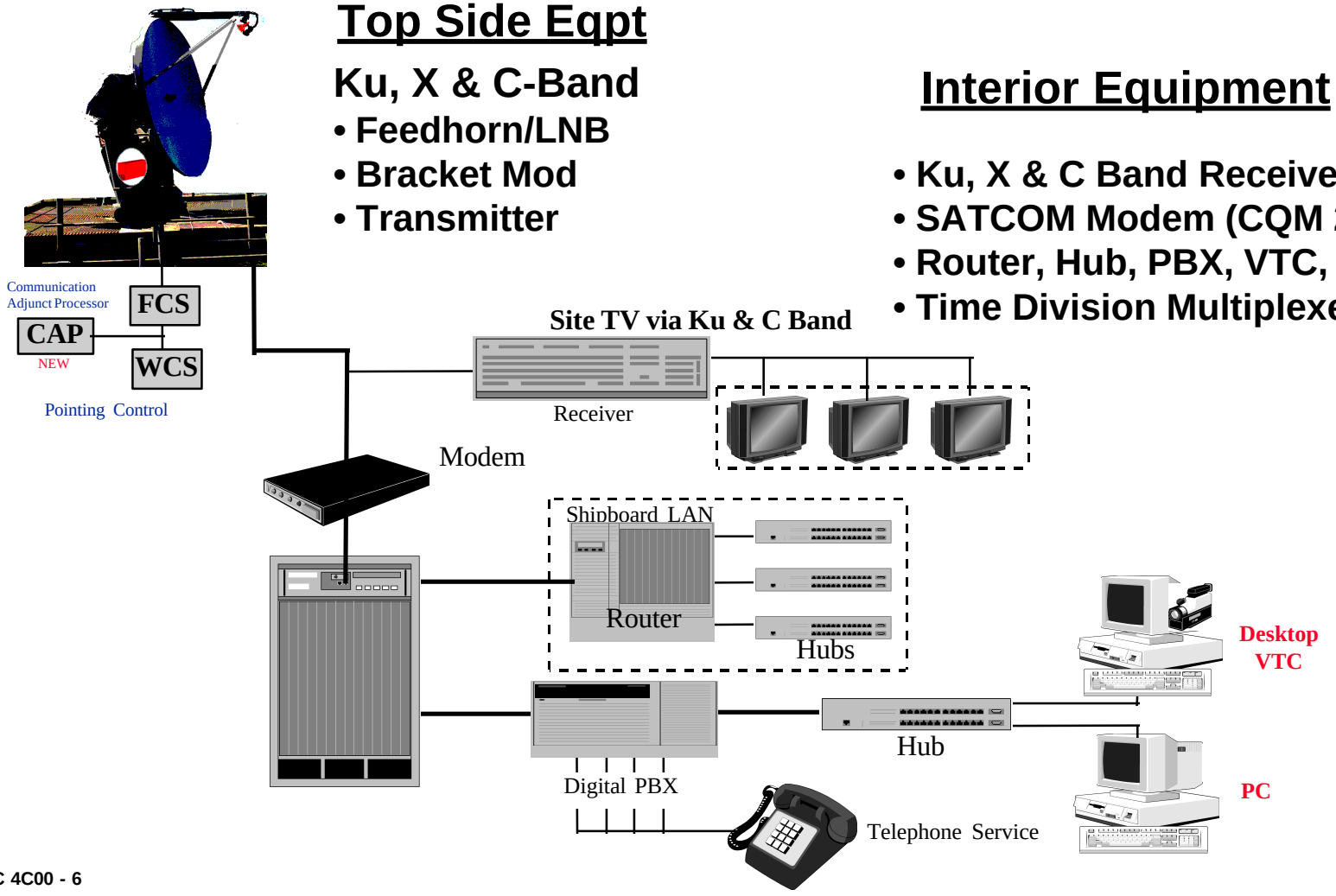
Top Side Eqpt

Ku, X & C-Band

- Feedhorn/LNB
- Bracket Mod
- Transmitter

Interior Equipment

- Ku, X & C Band Receiver
- SATCOM Modem (CQM 248)
- Router, Hub, PBX, VTC, Phones
- Time Division Multiplexer (TDM)



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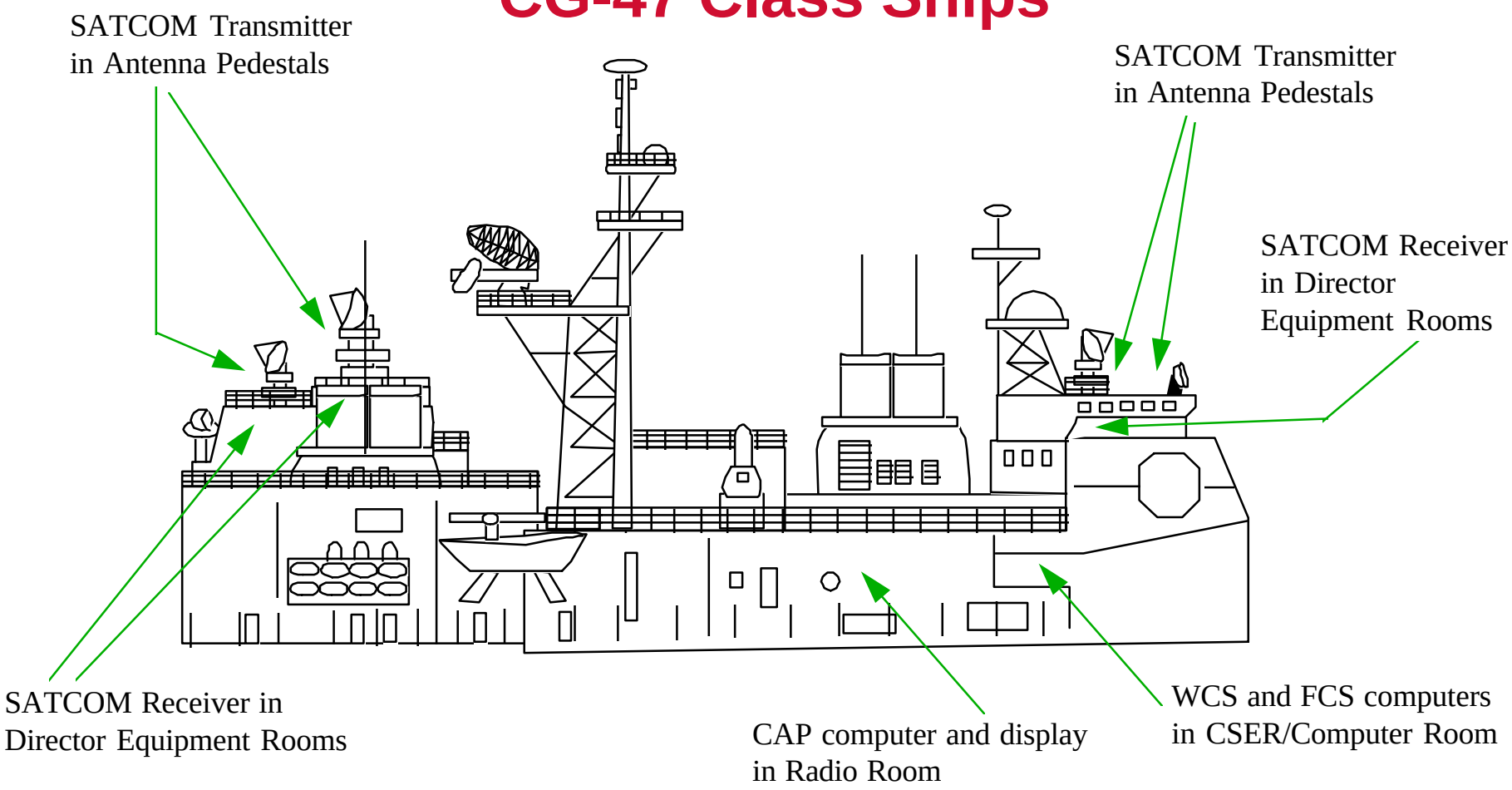
EQUIPMENT LOCATIONS
CG-47 Class Ships



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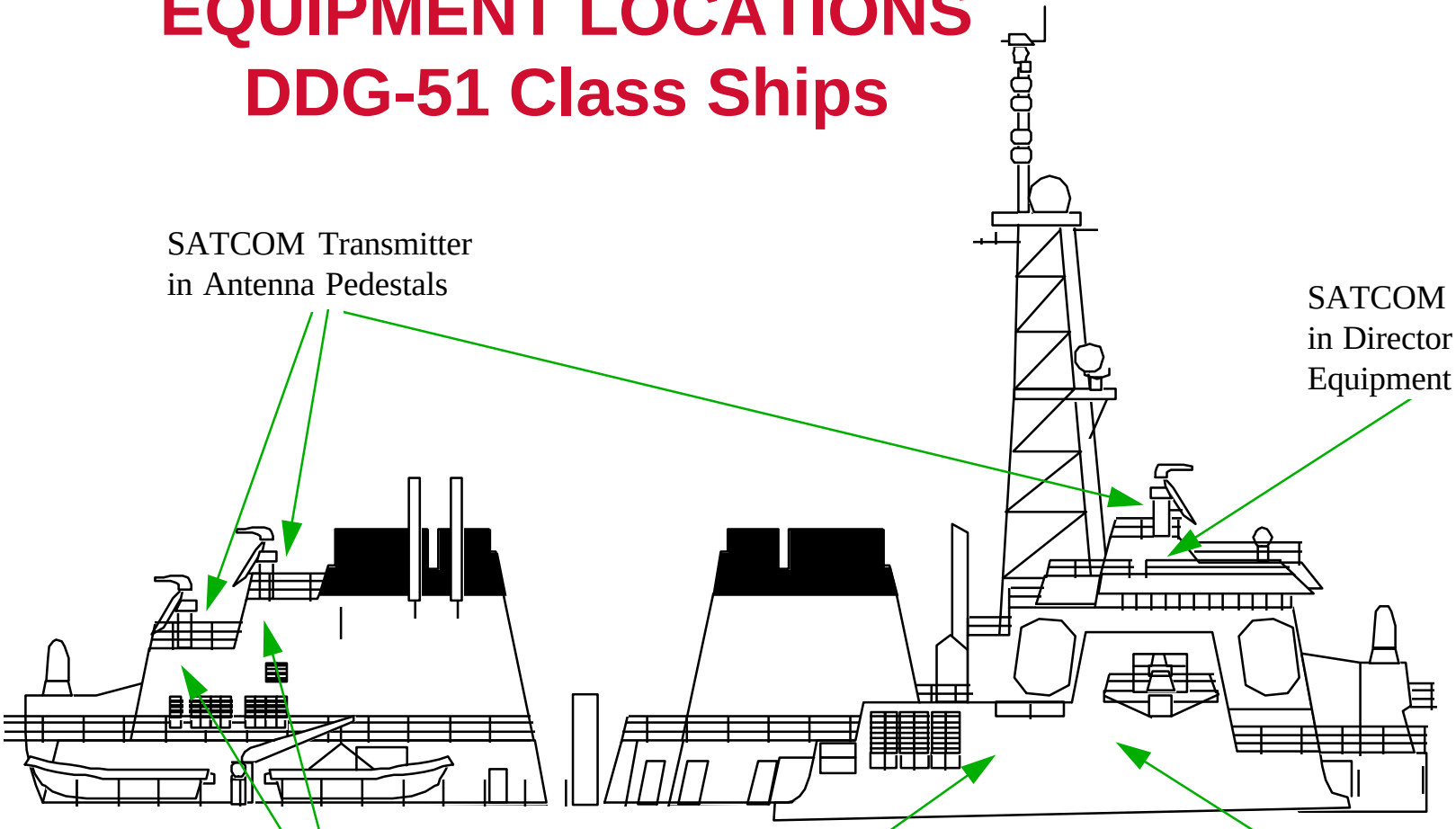
EQUIPMENT LOCATIONS
DDG-51 Class Ships



FCS SATCOM Review

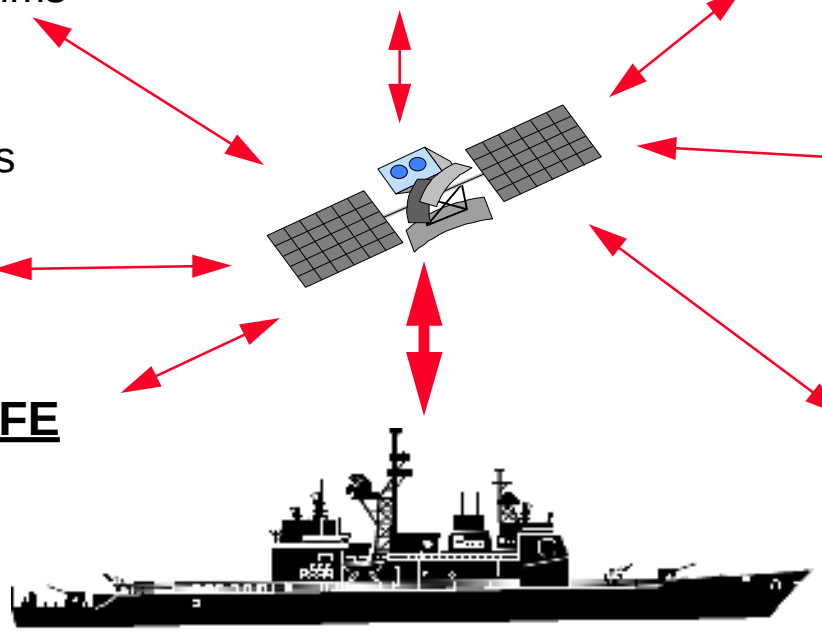
Operational Requirements

OPERATIONAL
- Voice/VTC/Data
- GBS Broadcast
- Surveillance Data
- LOS Comms

MAINTENANCE
- Damage Assessment
- Remote Sensing
- Tech Assist
- Training

TRAINING
- BFTT/OBT
- VTT, CAI
- Sim/Stim

LOGISTICS
- Database Updates
- CASREP Support
- Logs& Records
- Tech Manuals



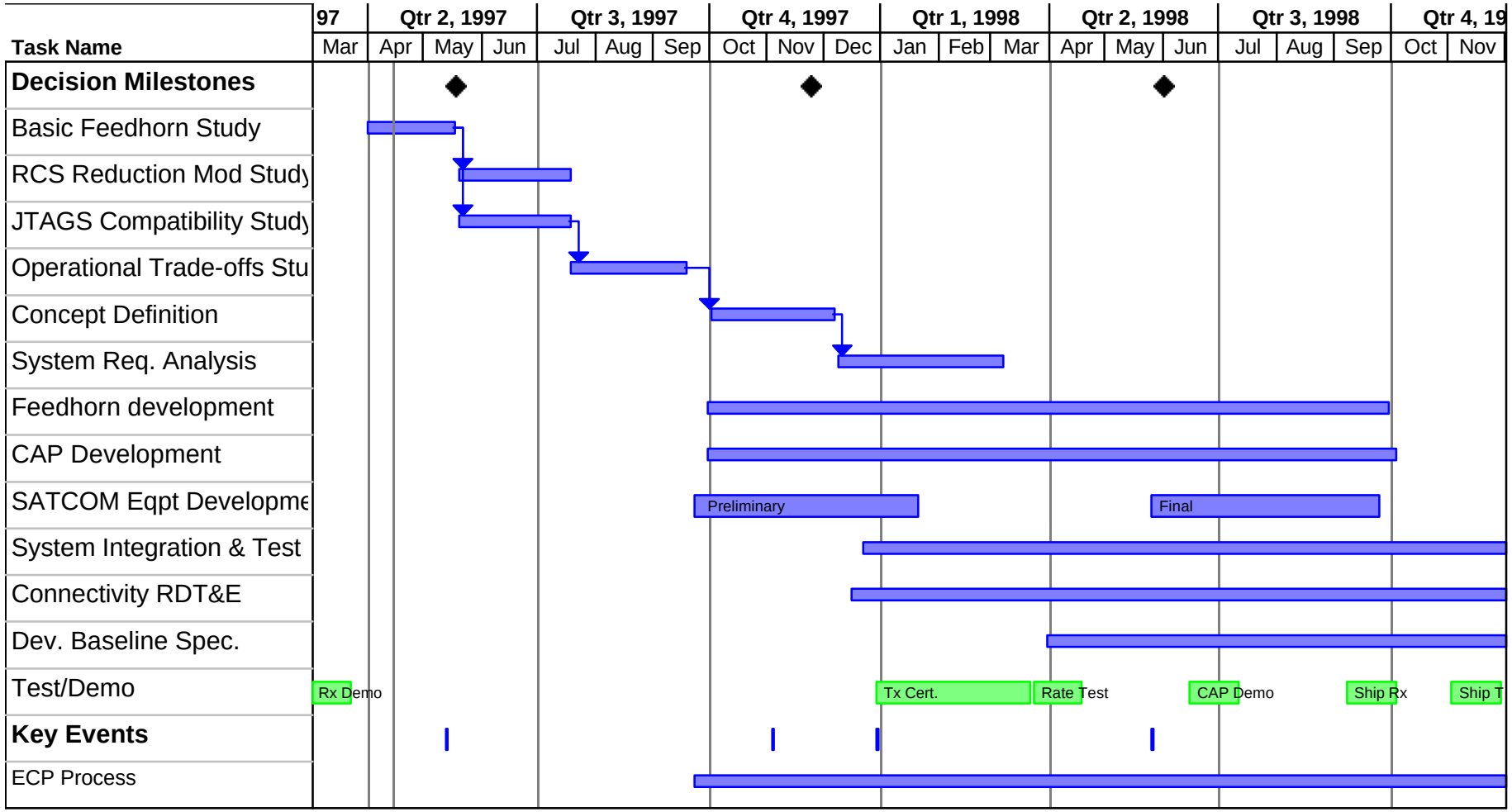
TACTICAL
- Training
- Reconstruction
- In-Sit Support
- Intel

QUALITY OF LIFE
- Financial
- Family Contact
- Afloat Degree
- TV, Phones

MEDICAL
- Diagnostic
- Training
- Consult

FCS SATCOM Review

Preliminary POA&M



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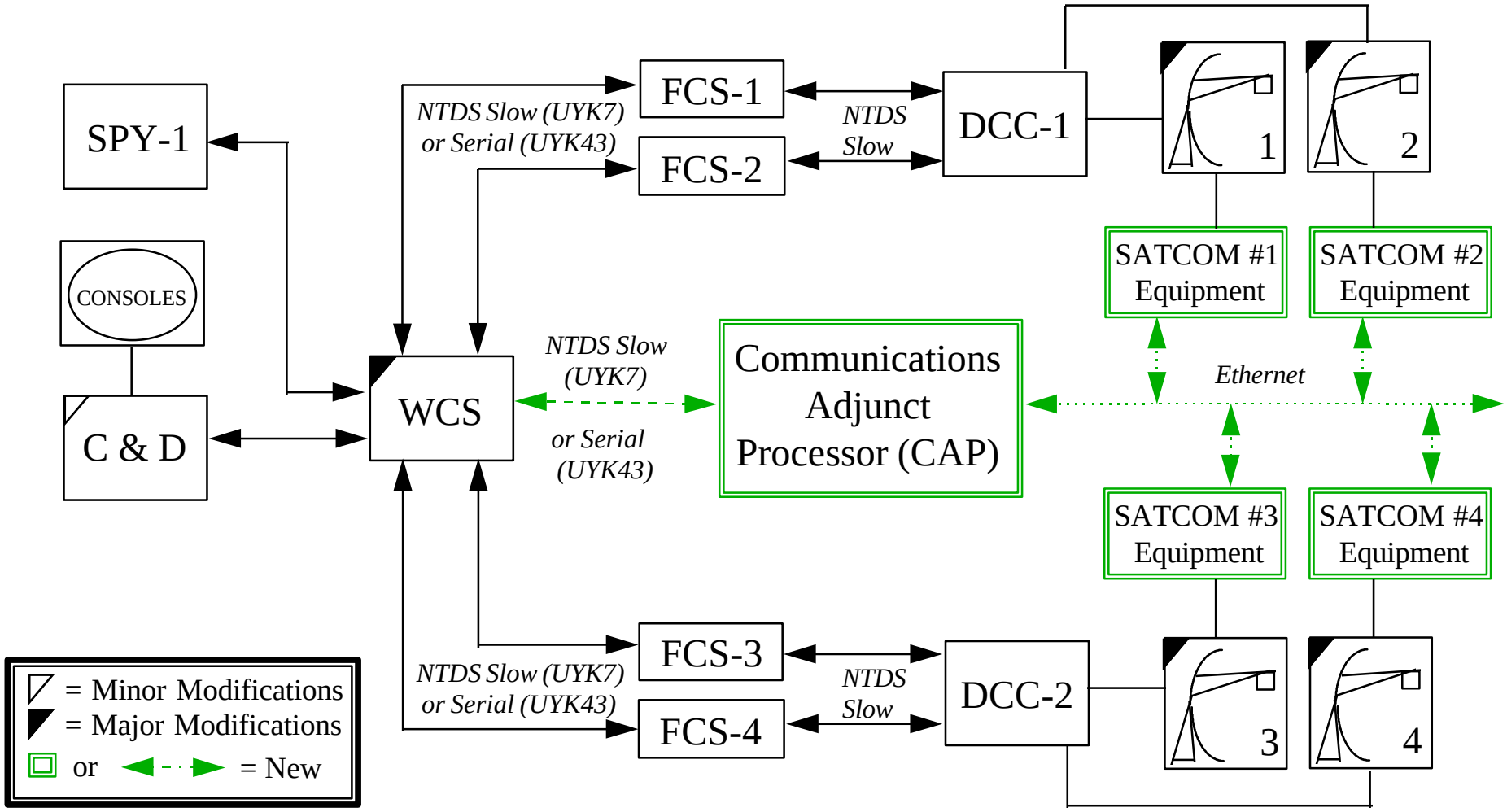
Aegis Weapon System Integration



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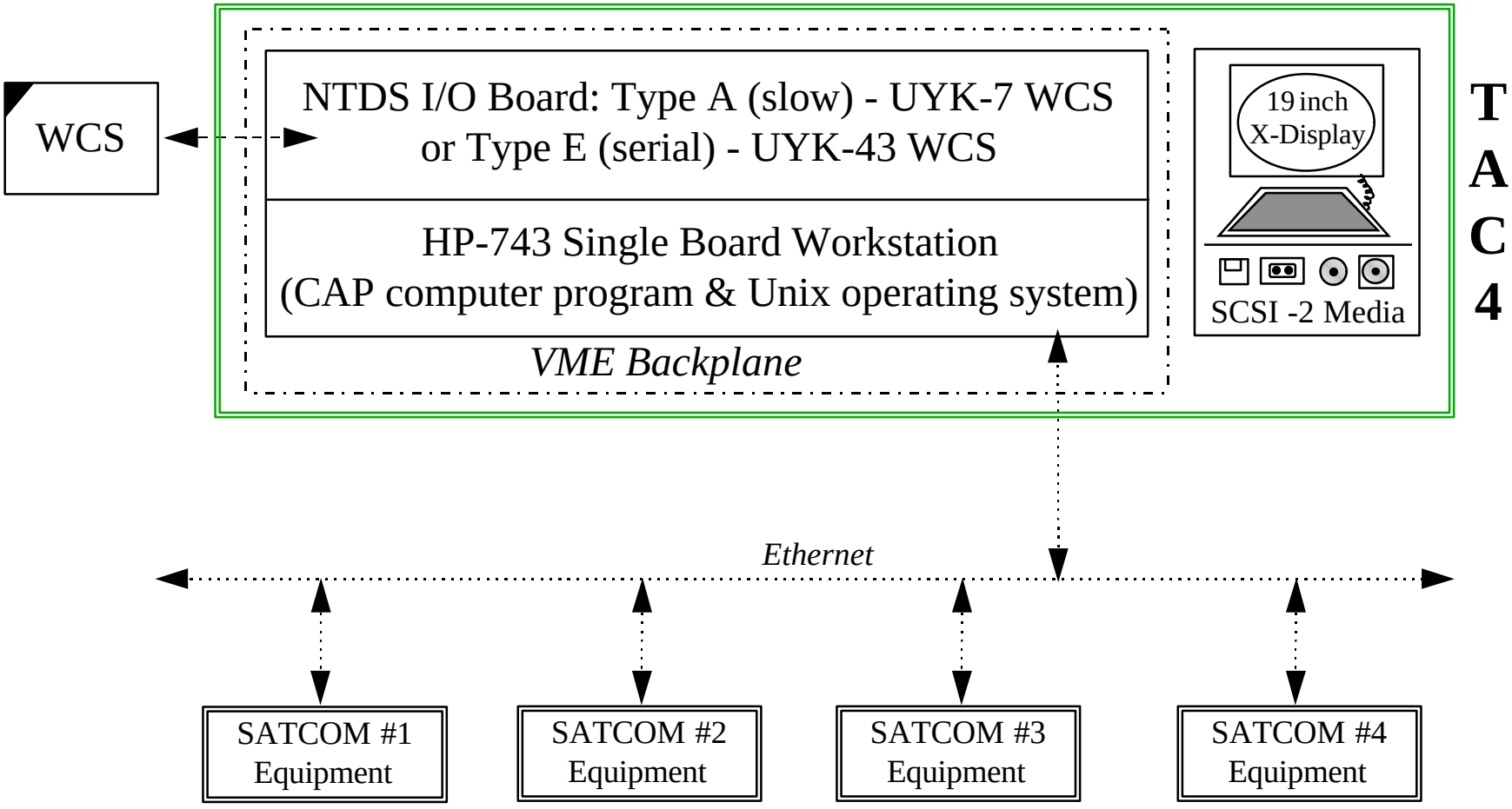
Communications Adjunct Processor (CAP)



FCS SATCOM Review

Team Meeting

- **Raytheon Feedhorn/Antenna Meeting**
  - C-band Antenna Pattern for Single Surface Dish Should Support SATCOM
  - Patterns Sent to NRAD for Review
  - Current Feedhorn will not Support C-band
  - Plan to Borrow or Procure X band Feedhorn
  - X & C-band Feedhorns will be Added to Modified Bracket
  - X and Ku-band will be Tested May/June
  - Tactical Beam Pattern Will be Tested as Well
  - Test Schedule to be Provided NLT 23MAY97

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Team Meeting

- **NRAD SATCOM Meeting**
  - Marine SATCOM uses Circular Polorization
  - C and X-band Transponder Time Available for Testing
  - NRAD can SATCOM Transmit Support Testing at SWEF
  - X and C-band Satellites are Available World Wide
  - Reviewed Potential Feedhorn Mods Required
  - Discussed Modification of Lower Rotary Joint
  - Reviewed Signal Path from Feedhorn
  - Reviewed Required Below Deck Equipment

FCS SATCOM Review

Future Plans

- Complete Raytheon Antenna Pattern Study for X-band
- Obtain Approval/Funding For Follow-on Ratheon Study
- Complete Trade Studies
- Conduct System Design Review
- Obtain Funding for Prototype Development & Testing
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